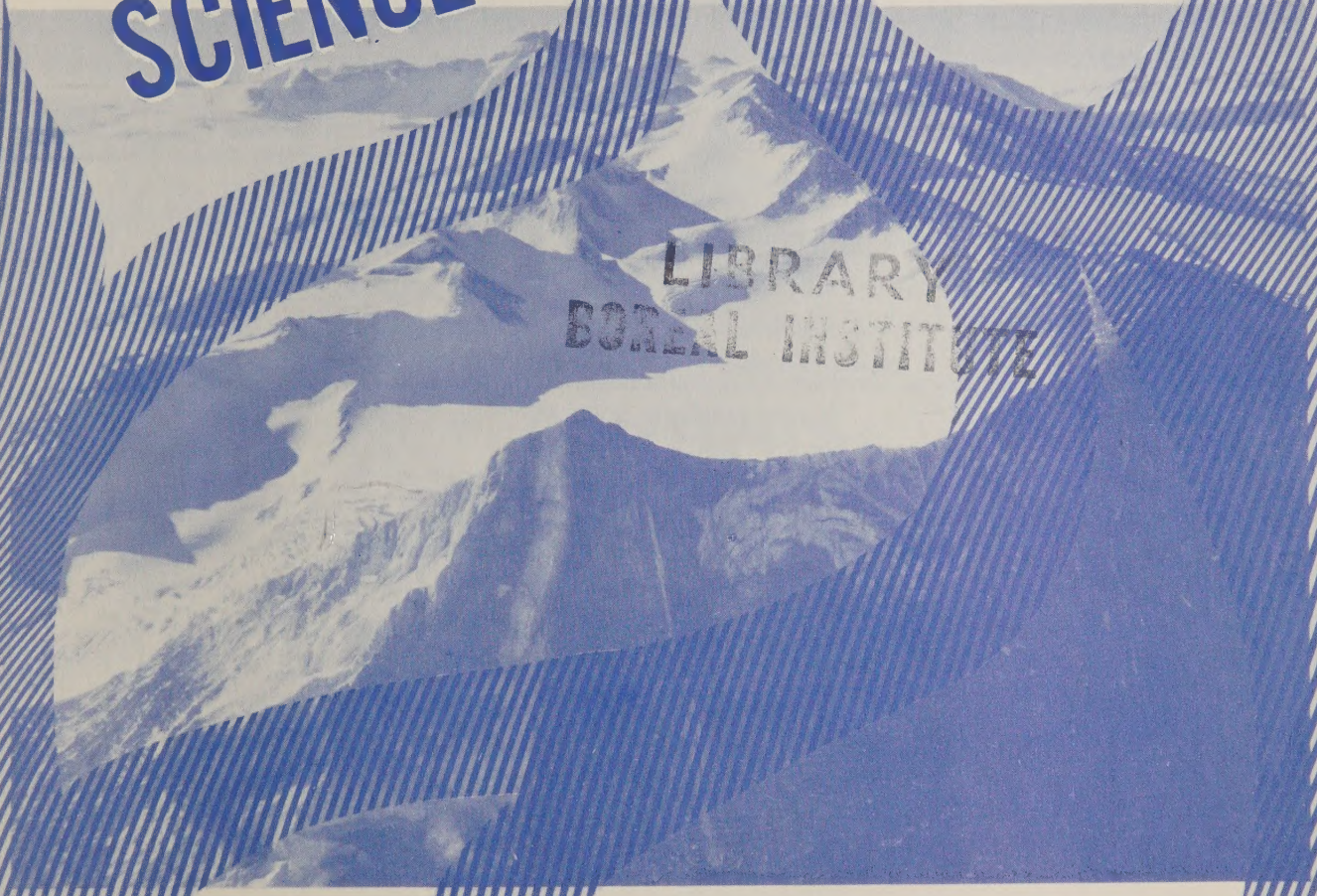
SUPPORT FOR SCIENCE IN ANTARCTICA

JAN 11 1965



LIBRARY
BOREAL INSTITUTE

U. S. ANTARCTIC PROJECTS OFFICER

POLAR
PAM
6353
POLARPAM

USAPO

Digitized by the Internet Archive
in 2022 with funding from
University of Alberta Library

https://archive.org/details/supportforscienc00unit

SUPPORT for SCIENCE ANTARCTICA

This publication has been compiled and produced by the U.S. Antarctic Projects Officer, Washington, D.C., in June 1964. Unless otherwise noted, all photographs appearing in this publication are official U.S. Navy photographs. Gratitude is expressed to the manufacturers listed below for their aid in supplying photographs and specifications of their equipment for use in this publication.

Caterpillar Tractor Corporation
Thiokol Chemical Corporation
Robin Nodwell Manufacturers, Ltd.
FWD Corporation, Ltd.
Polaris Industries, Inc.
Otaco, Ltd.

CONTENTS

STATIONS 1
- Amundsen-Scott South Pole... 2
- Byrd 4
- Eights 6
- Hallett 8
- McMurdo 10
- Williams Field 12
- Beardmore 12
- Little Rockford 12

AIRCRAFT 13
- C-130 14
- LC-47 15
- C-54Q 16
- C-121J 16
- C-124 17
- Otter 17
- CH-19E 18
- UH-13F 18
- CH-34E 19
- UH-1B 20

SHIPS 21
- Alatna Class 22
- Andromeda Class 23
- Edsall Class 24
- Eltanin Class 25
- Glacier Class 26
- Loch Class 27
- Patapsco Class 28
- Victory Class 29
- Wind Class 30

VEHICLES 31
- Caterpillar Tractors 32
- Motor Tobbogans 33
- Nodwell 34
- Sleds 35
- Sno-Cat 36
- Trackmaster 38
- Traxcavator 40
- Weasel 41

09624

FOREWORD

Support for Science, Antarctica is a revision of a publication originally issued as a supplement to the U. S. Antarctic Projects Officer Bulletin, Volume II, No. 1, September 1960. The purpose is to provide basic data together with photographs of the principal stations, ships, aircraft, and vehicles used to support United States Antarctic activities.

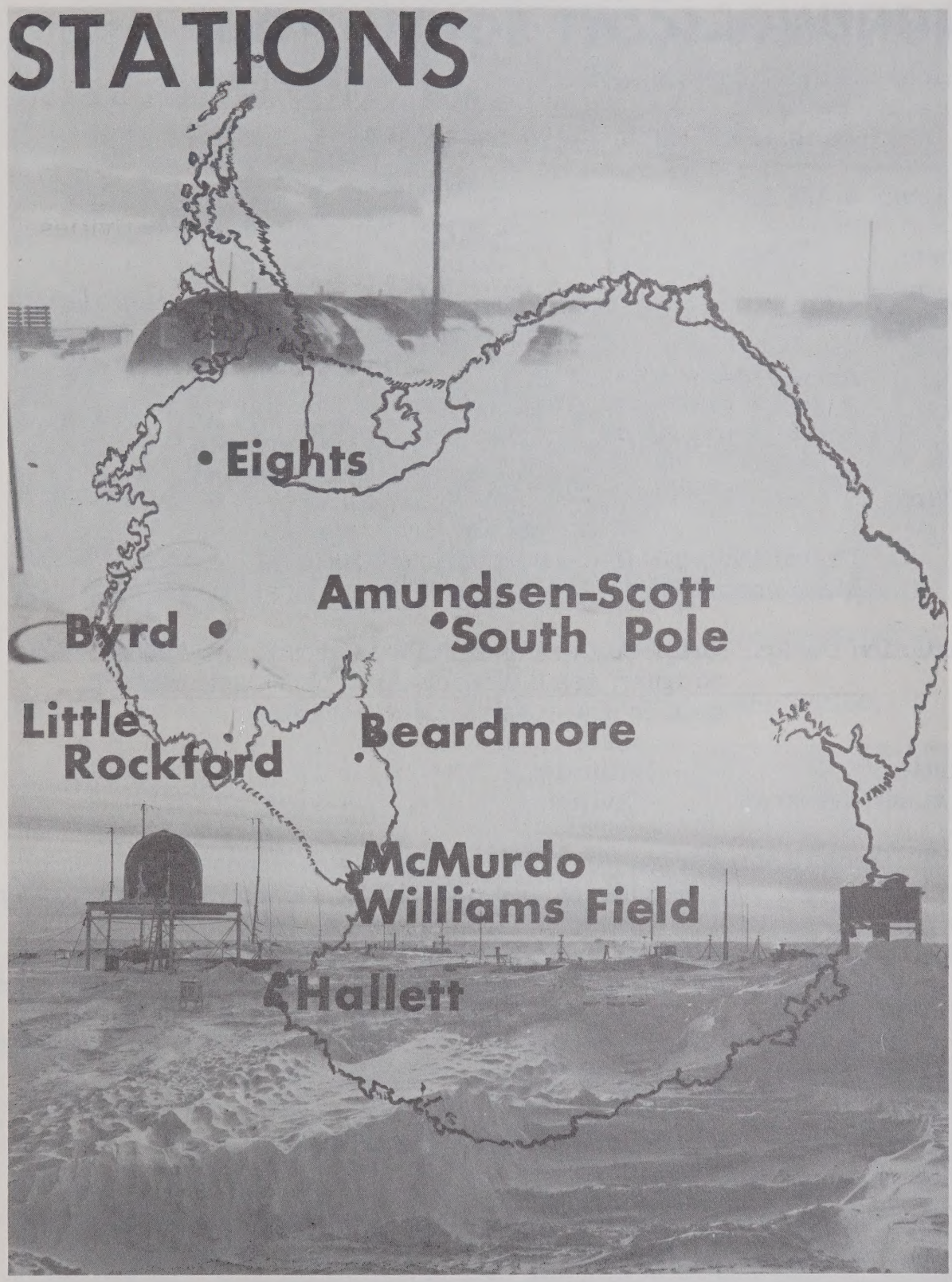
Since the beginning of DEEP FREEZE I in 1955, the Department of Defense has exercised responsibility for logistic support in Antarctica. The United States Navy, acting as agent of the Department of Defense, has assumed the major share of this burden. It has, however, received assistance from Coast Guard ships and Army and Air Force aircraft. Personnel of the Marine Corps and Public Health Service have participated in the operations as well as those from the Army, Navy and Air Force.

The National Science Foundation, through the United States Antarctic Research Program, funds and manages the scientific program. As part of this program, it furnishes scientific equipment, including tents, supplies, and vehicles used by scientific field parties and traverses.

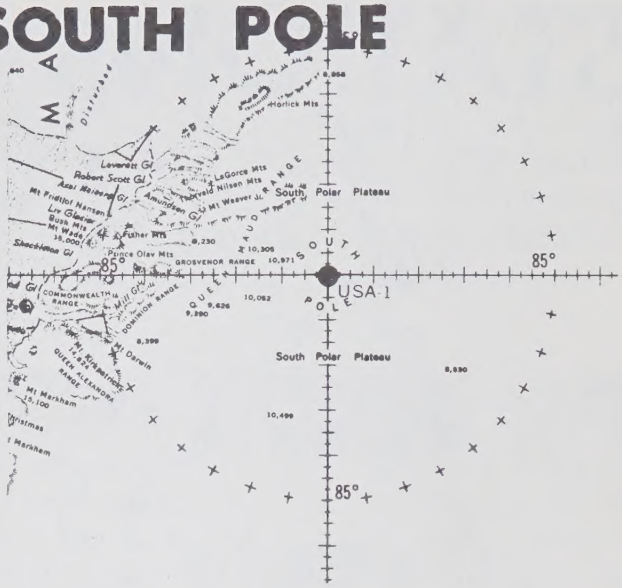
The ships, aircraft, and vehicles described in this publication are those which are actually employed in the Antarctic area. Those whose activity is confined to furnishing support between the United States and New Zealand are not included. For each item the following data are given where applicable and available: name, manufacturer, function, specifications, and extent of participation. The stations are those occupied during the 1963-1964 season. For each station there is information on its location, background, date of establishment, functions, climate, and type of construction.

It is hoped that Support for Science, Antarctica will prove useful to visitors, students, and general readers who may wish to know something about the stations and equipment which they either see or read about.

STATIONS


• Eights
Amundsen-Scott
South Pole
Byrd •
Little
Rockford
Beardmore
McMurdo
Williams Field
Hallett

AMUNDSEN-SCOTT SOUTH POLE



Location: South Geographic Pole.

Latitude 90° 00' S.

Elevation: 9,186 feet.

Weather:

Temperature:

Annual Mean	-49.3°C.
Extreme Low	-78.9°C.
Extreme High	-14.7°C.

Wind:

Prevailing N NE (from longitude 22° 30' E.).
Mean Annual Speed: 12.7 knots.

Construction Design: Originally permanent above ground, now under drifted snow; some Wonder-Arch construction being used in new construction projects.

Population: (winter average)		
	Military	11
	Civilian	11

Scientific Disciplines: Aurora and airglow, glaciology, ionospheric physics, meteorology, geomagnetism, seismology, cosmic ray.

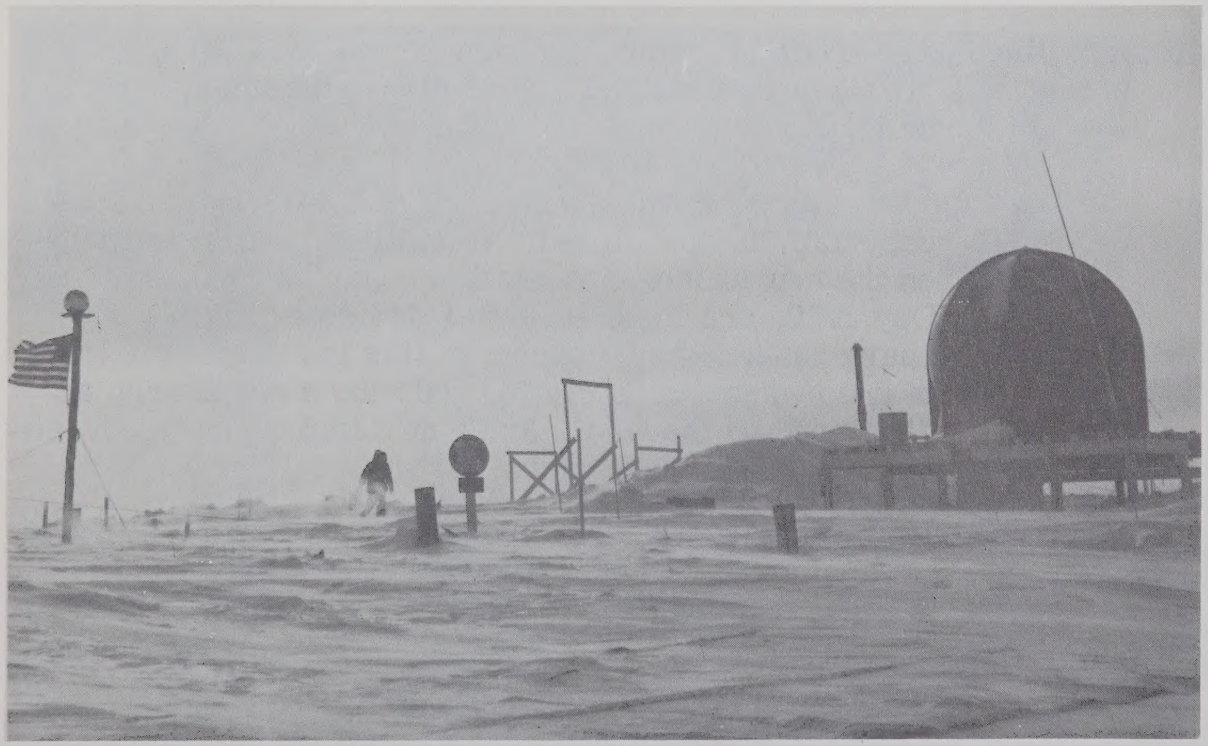
History: Established as a scientific station for IGY and named for the famous explorers, Roald Amundsen and Robert F. Scott. The First construction party landed on 20 November 1956 and the station was officially dedicated on 23 January 1957. Eighteen Americans wintered-over during DEEP FREEZE II (1956-1957), the first men to live at the South Pole.

Primary Function: Scientific studies.

Air Facilities: Skiway

Top: Amundsen-Scott South Pole Station in 1958 showing construction detail.

Bottom: Present condition of Amundsen-Scott South Pole Station.



LIBRARY
BOREAL INSTITUTE

BYRD

Location: Marie Byrd Land.

Longitude 119° 31' W.
Latitude 80° 01' S.

Elevation: 5,012 feet.

Weather:

Temperature:

Annual Mean: -28.2°C.
Extreme Low: -63.2°C.
Extreme High: - 0.8°C.

Wind:

Prevailing Direction N NE.
Mean Annual Speed: 16.5 knots.

Construction Design: T-5 prefabricated buildings in Wonder-Arch tunnels; specially built scientific buildings.

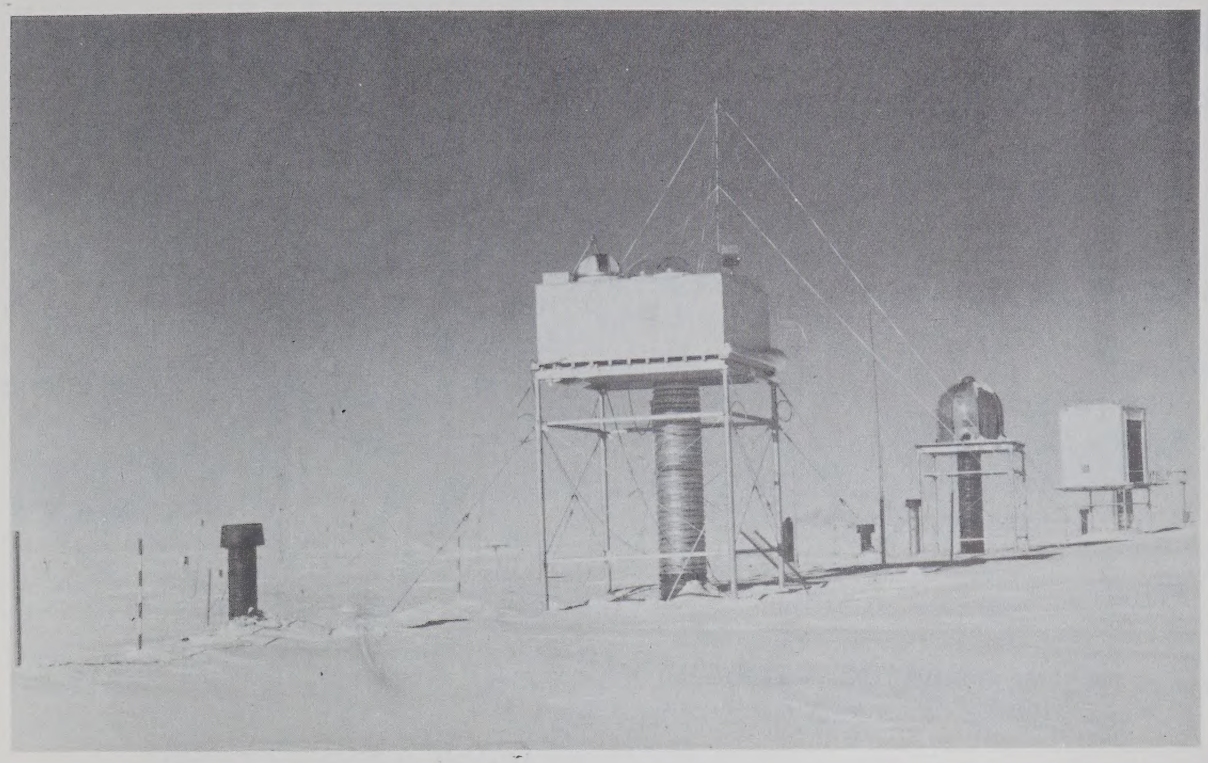
Population: (winter average)		
	Military	22
	Civilian	12

Scientific Disciplines: Aurora and airglow, ionospheric physics, meteorology, geomagnetism, seismology, glaciology, radio science.

History: The original Byrd IGY Station, commissioned 1 January 1957 is now closed and collapsed. Construction on the new under-snow station began on Thanksgiving Day 1960, and the station was dedicated on 13 February 1962. Basic concept of this installation is that of under-snow construction utilizing a metal arch as developed by the U. S. Army at Camp Century, Greenland.

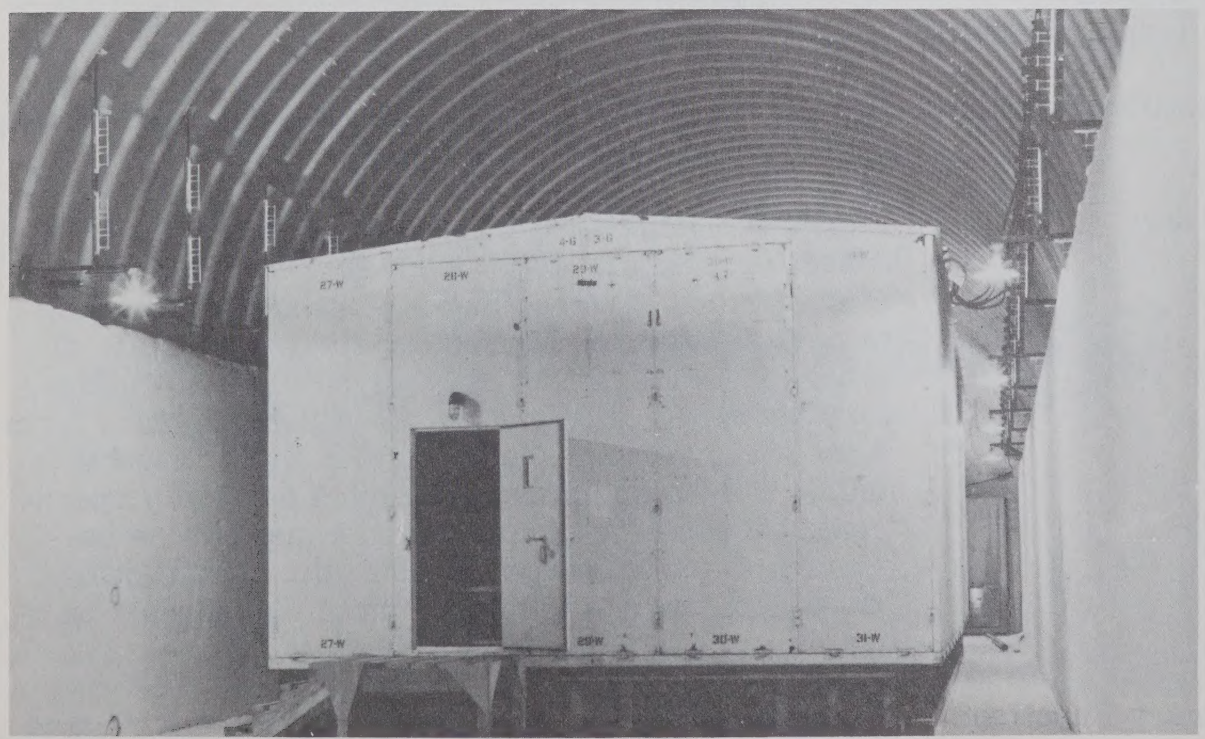
Primary Function: Scientific studies.

Air Facilities: Skiway.

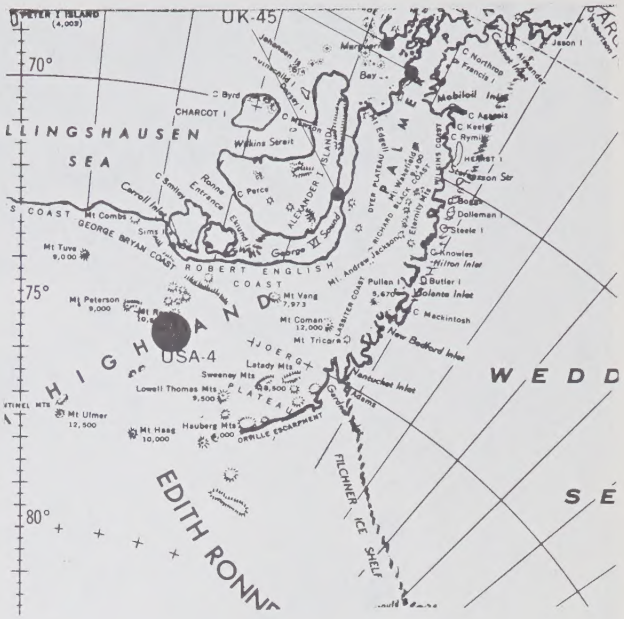


Top: Overall view of main tunnel superstructure; (L-R) Aurora Tower, Rawin Tower, Balloon Releasing Tower.

Bottom: Interior of tunnel at Byrd Station showing T-5 structure and Wonder-Arch construction.



EIGHTS



Location: Base of Antarctic Peninsula.
Longitude 77° 10' W.
Latitude 75° 14' S.

Elevation: 1,380 feet.

Weather:

Temperature:

Annual Mean:	-26.0°C.
Extreme Low:	-51.1°C.
Extreme High:	- 1.7°C.

Wind:

Direction not avaiable at this time.
Speed: 10 knots (approximately).

Construction Design: Air-transportable units, 8 x 8 x 27 feet, module construction completely equipped for intended use. Total of 11 units.

Population: (winter average)		
	Military	5
	Civilian	6

Scientific Disciplines: Ionospheric physics, geomagnetism, auroral studies, radio phenomenon, meteorology.

History: Named for James Eights, a naturalist and the first American scientist to visit Antarctica. Established near summer station , Sky-hi, when the first units were flown with a construction crew in January of 1963. The station was officially opened on 27 January 1963. An overland traverse party arrived from Byrd Station with heavy equipment on 31 January 1963. The establishment of Eights as a fully operational base in less than one month marked the beginning of a new concept in Antarctic construction based upon the use of modual units transported by air.

Primary Function: Scientific studies in ionospheric physics and related fields.

Views of Eights Station showing van-type construction and base design.

HALLETT

Location: Cape Hallett, Moubray Bay.
Longitude 170° 18' E.
Latitude 72° 18' S.

Elevation: 16 feet.

Weather:

Temperature:

Annual Mean: -15.7°C.
Extreme Low: -47.8°C.
Extreme High: + 8.3°C.

Wind:

Prevailing Direction SW.
Mean Annual Speed: 7 knots.

Construction Design: Permanent above ground; 24 buildings on glacial moraine.

Population: (winter average)	Military	9
	Civilian	9

Scientific Disciplines: Aurora and airglow, biology, geomagnetism, cosmic rays, meteorology, seismology.

History: Hallett IGY Station is jointly manned with New Zealand scientists. It was first called Adare Station but later changed to Hallett because of the location. Prior to construction, which began on 2 January 1957 and was completed on 21 January 1957, over 8,000 penguins were ejected from the site.

Primary Function: Provide meteorological data for advance forecasting at McMurdo; biological and geomagnetic studies.

Air Facilities: Runway on sea-ice, usable from about 1 October to about the last week in November; suitable only for light aircraft. (Heavy aircraft have landed in emergencies.)

Top: Close-up view of Hallett Station "Main Street", Admiralty Range in background.

Bottom: Overall view of Hallett Station.

LIBRARY
POLAR INSTITUTE

McMURDO

Location: Ross Island, McMurdo Sound.

Longitude 166° 37' E.
Latitude 77° 51' S.

Elevation: 79 feet.

Weather:

Temperature:

Annual Mean	-17.7°C.
Extreme Low	-50.6°C.
Extreme High	+ 5.5°C.

Wind:

Prevailing Direction E.
Mean Annual Speed: 12.2 knots.

Construction Design: Permanent above ground; constructed on volcanic ash. About 125 structures of various types.

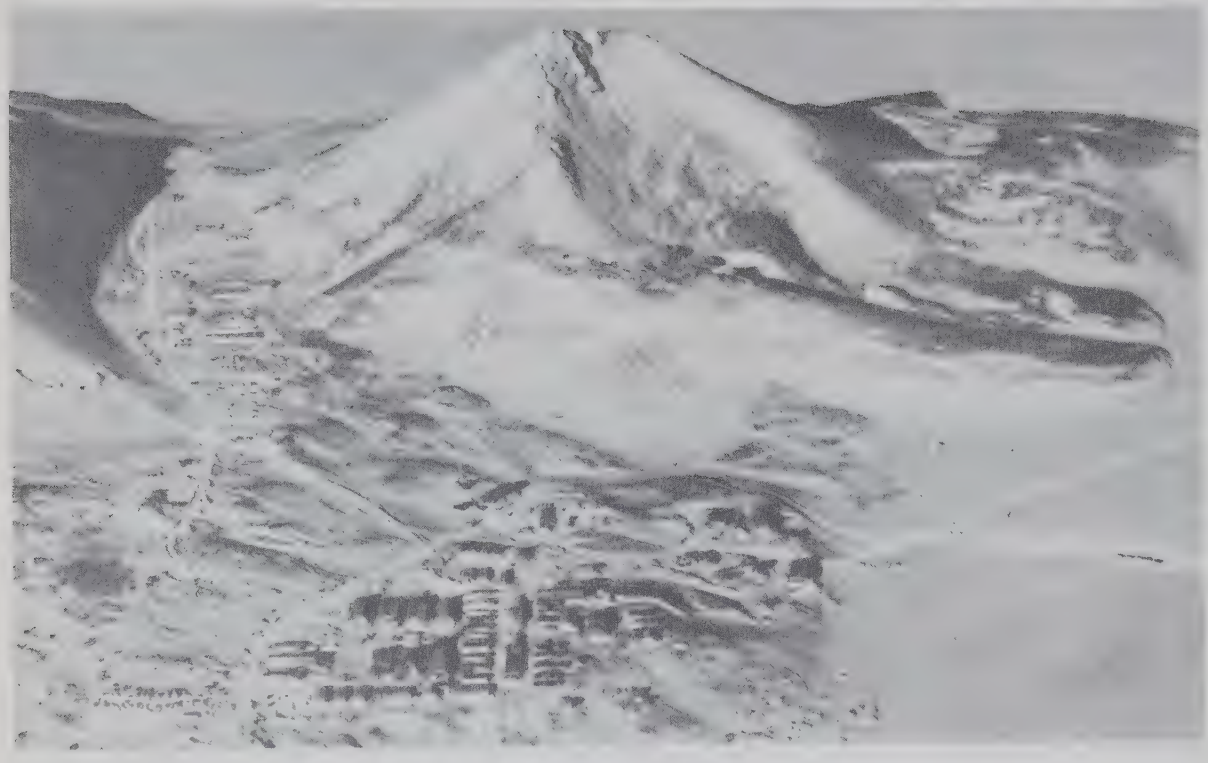
Population: (winter average)		
	Military	205
	Civilian	20

Scientific Disciplines: Biology, cosmic rays, ionospheric physics, meteorology, glaciology.

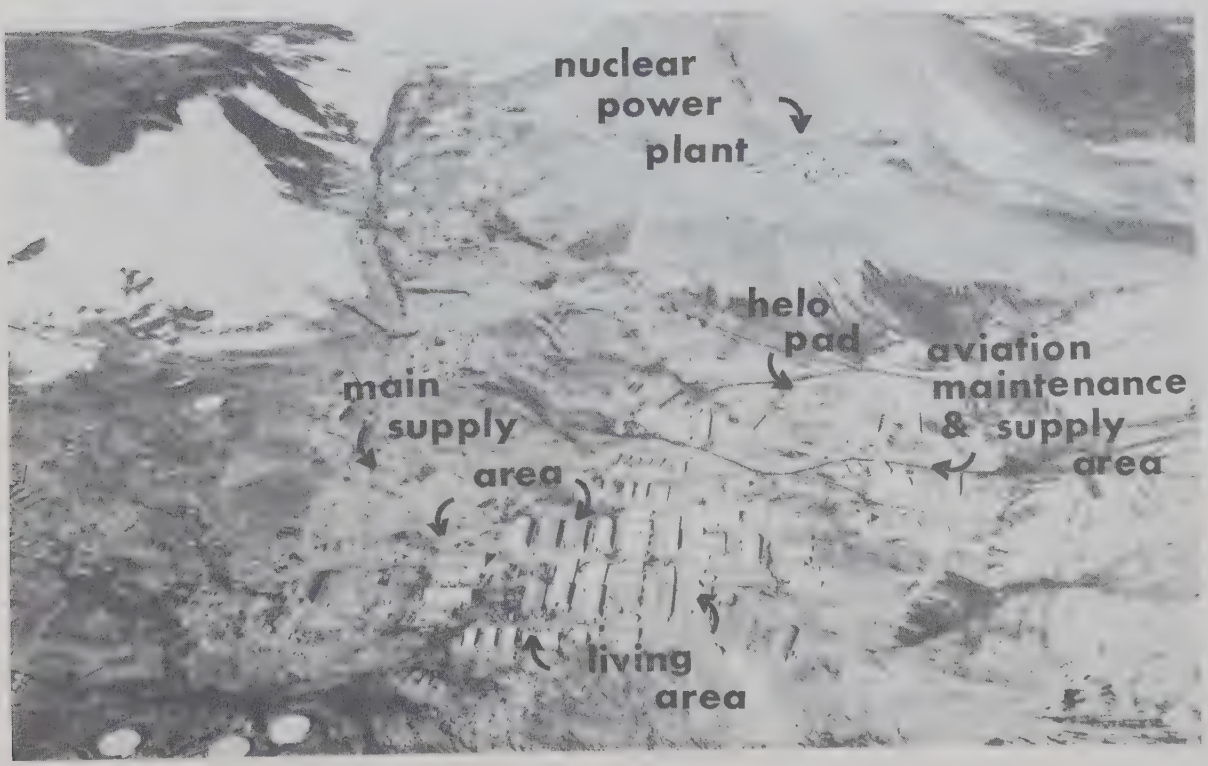
History: McMurdo Station located at Hut Point on the shore of Ross Island, was one of the seven U. S. stations established for the IGY Programs (July 1, 1957-December 31, 1958). Construction of this logistical support base began on 20 December 1955, and it became operational on 16 February 1956. It is the only station in Antarctica that receives power from a nucler reactor.

Primary Function: Logistic resupply of inland bases, meteorological center, biological studies.

Air Facilities: Helicopter pads and storage facilities at base; Williams Field.



Aerial views of McMurdo Station, Observation Hill in background.



WILLIAMS FIELD

Location: Ross Ice Shelf, McMurdo Sound
Longitude: 166° 37' E.
Latitude: 77° 55' S.

Construction: Jamesways and wannigans

Population: variable summer, none winter

History: Present facility constructed during DEEP FREEZE 63 to replace old facility which was in danger of breaking out.

Facilities: Refueling capability for aviation gas and JP-4; limited maintenance and repair facilities--main shops at McMurdo Station.

Runways: 10,000 foot skiway, 6,000 foot ice runway useable from October through March for wheeled aircraft.

Nav-aids: LF and UHF homing beacons, radio direction finding equipment, TACAN, and GCA.

BEARDMORE

LITTLE ROCKFORD

	BEARDMORE	LITTLE ROCKFORD
Location:		
Longitude:	175° 45' E.	147° 30' W.
Latitude:	83° 17' S.	79° 16' S.
Construction:	Jamesways and van-type buildings	wannigans and van-type buildings
Function:	weather reporting for McMurdo-South Pole flights.	weather reporting for McMurdo-Byrd flights.
Population:	3-6, summer only.	4-6, summer only.

AIRCRAFT

LIBRARY
BOREAL INSTITUTE

C-130 HERCULES

The C-130 Hercules is a turbo-prop, transport-type aircraft built by the Lockheed Aircraft Corporation. It has two basic configurations: with tricycle ski-wheel landing gear, capable of landing on either concrete runways or snow airstrips (LC-130F) or with standard wheeled landing gear (C-130E). Primary function of the C-130 is direct delivery of logistic supplies; the aircraft is also capable of air-drop, search and rescue, reconnaissance, and aerial photography missions.

The Air Force initially used the C-130 in the Antarctic during DEEP FREEZE 60. Subsequently, the Navy obtained four LC-130Fs for resupply of inland bases; the Air Force now uses C-130Es exclusively for air cargo supply of McMurdo. During DEEP FREEZE 64, the LC-130Fs were equipped with infuselage bulk fuel tanks for transport and direct delivery of bulk POL products to inland bases. These tanks can also be used as auxilary fuel tanks.

SPECIFICATIONS:

Wing Span:	132' 7"
Height:	38' 0"
Length:	97' 8"
Gross Weight (pounds):	124,200
Range (miles):	
Cargo Maximum:	1,500
Fuel Maximum:	3,240
With Fuselage Tank:	5,740
Payload (pounds):	
Cargo Maximum:	31,100
Fuel Maximum:	10,000
Crew:	4
Fuel Capacity (gallons):	7,150
Fuselage Tank:	3,600
Engines:	4
Manufacturer:	Allison
Type:	Turbo-prop
Rating (horsepower):	3,375
Maximum Speed (mph):	340

LC-47 DAKOTA

The LC-47, manufactured by the Douglas Aircraft Corporation, is used extensively for support of scientific field parties and for a wide variety of logistic and medium range reconnaissance missions. Prior to the advent of the LC-130F, it was the principal aircraft used for direct delivery of personnel and cargo to inland stations.

SPECIFICATIONS:

Wing Span:	90' 0"
Height:	18' 3"
Length:	67' 9"
Gross Weight (pounds):	31, 000
Range (nautical miles):	1, 100
Payload (pounds):	9, 000
Ceiling (feet):	22, 700
Crew:	3
Fuel Capacity (gallons):	1,604
Maximum Speed (knots):	233
Engines:	2
Manufacturer:	Wright
Type:	Piston
Rating (horsepower):	1,275

C-54Q, C-121J

The C-121J Super Constellation, manufactured by the Lockheed Aircraft Corporation, and the C-54Q Skymaster, manufactured by the Douglas Aircraft Corporation, are both wheel-equipped aircraft. They are used for logistic and personnel flights between the United States and New Zealand and operate in the Antarctic during the period that ice runway at McMurdo is usable.

Top: C-121 J

Bottom: C-54Q

SPECIFICATIONS:	C-54Q	C-121J
Wing Span:	117' 6"	123' 0"
Height:	27' 6"	24' 9"
Length:	93'11"	116' 6"
Gross Weight (pounds):	73,000	145,000
Range (nautical miles):	2,590	3,110
Payload (pounds):	27,000	34,312
Ceiling (feet):	22,700	21,100
Crew:	6	5-8
Fuel Capacity (gallons):	3,540	6,570
Maximum Speed (knots):	243	310
Engines:	4	4
Engine Manufacturer:	Pratt and Whitney	Wright-Aero
Engine Rating (horsepower):	1,100	3,250

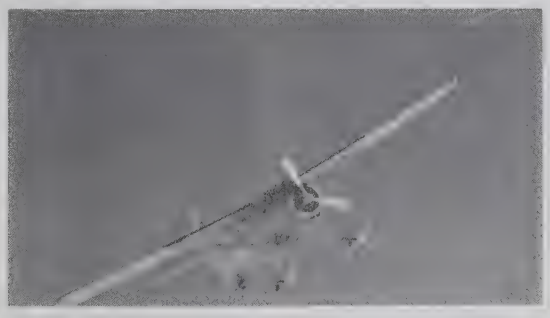
C-124

The C-124 Globemaster, manufactured by Douglas Aircraft Corporation, was used to provide logistic support to inland bases DEEP FREEZE II through DEEP FREEZE 63. In 1960, the C-124s began to be phased out and replaced by C-130 type aircraft, both ski-equipped and wheeled. All C-124s have now been replaced either by the LC-130E or LC-130F. Occasional use is still made of the C-124 on special mission flights from Christchurch to McMurdo.

SPECIFICATIONS:

Crew:	7
Fuel Capacity(gallons):	11,000
Speed (knots):	200
Engines:	4
Manufacturer:	Pratt and Whitney
Type:	Piston
Rating (horsepower):	3,500
Wing Span:	174' 0"
Height:	48' 3"
Length:	130' 2"
Gross Weight (pounds):	185,000
Payload (pounds):	70,000
Range (miles):	2,000

OTTER



The Otter, manufactured by the DeHaviland Corporation, is a general utility transport aircraft. Ski-equipped, it is used for short range logistic delivery, scientific field party support, and for aerial reconnaissance.

SPECIFICATIONS:

Wing Span:	58' 0"
Height:	12' 7"
Length:	41'10"
Gross Weight (pounds):	8,000
Range (miles):	960
Payload (pounds):	3,000
Ceiling (feet):	18,000
Crew:	1
Fuel Capacity (gallons)	215
Maximum Speed (mph)	160
Engines:	1
Manufacturer:	Pratt and Whitney
Type:	Piston
Rating (horsepower):	600

HELICOPTERS

The UH-13F and CH-19E helicopters are based aboard icebreakers. The UH-13F is used primarily for reconnaissance, locating leads in the ice fields for the ships to follow. The CH-19E is a multi-purpose aircraft, used to haul both cargo and passengers, as well as make reconnaisance flights. The UH-13F is manufactured by the Bell Helicopter Corporation; the CH-19E is a product of the Sikorsky Company.

UH-13F

CH-19E

SPECIFICATIONS:	UH-13F	CH-19E
Wing Span (rotors):	37' 2"	53' 0"
Height:	12' 0"	13' 4"
Length:	43' 4"	42' 1"
Gross Weight (pounds):	2,700	7,500
Range (nautical miles):	142	270
Payload (pounds):	1,000	2,250
Ceiling (feet):	11,600	14,800
Crew:	1	2
Fuel Capacity (gallons)	35	189
Speed (knots):	75	102
Engines:	1	1
Manufacturer:	Lycoming	Wright
Type:	Piston	Piston
Rating (horsepower):	220	700

CH-34E

The CH-34E helicopter, manufactured by the Sikorsky Corporation, is a land-based, general utility aircraft. It is used primarly for short-range scientific field party support, personnel transport, and reconnaissance in the McMurdo Sound area. It is also utilized in construction work and light cargo handling operations.

SPECIFICATIONS:

Wing Span (rotor):	56' 0"	Crew:	2
Height:	15'10"	Fuel Capacity (gallons):	205
Length:	37' 0"	Maximum Speed (knots)	122
Gross Weight (pounds):	14,000	Engines:	1
Range (nautical miles):	275	Manufacturer:	Wright
Payload (pounds):	1,335	Type:	Piston
Ceiling (feet):	14,750	Rating (horsepower):	1,425

UH-1B

The UH-1B Iroquois, manufactured by the Bell Company, is a utility type helicopter incorporating design features which simplify control and maintenance procedures. It is used primarily to provide direct support for topographical and geological survey work in the field. The efficiency of its operation at high altitudes and under extremes of cold have saved many man hours in the accomplishment of the scientific goals of field parties.

SPECIFICATIONS:

Wing Span (rotor):	53' 0"	Crew:	2
Height:	14' 7"	Fuel Capacity (gallons):	1,007
Length:	38' 3"	Speed (mph):	120
Gross Weight (pounds):	6,600	Engines:	1
Payload (pounds):	2,000	Type:	Gas Turbine
Range (miles):	490	Rating(shaft horsepower):	1,100
Ceiling (feet):	17,000	Manufacturer:	Lycoming

SHIPS

ALATNA CLASS

TYPE: Bulk-petroleum carrier suitable for transporting diesal oil and aviation and motor fuel.

CONSTRUCTION: Single decked with raised forecastle and poop; machinery and pilot house located aft. Has ice pilot station helicopter deck, and icebreaker-type bow.

SPECIFICATIONS:

Length (overall):	302 feet	Screws:	3
Beam:	61 feet	Propulsion:	Diesal Electric
Draft:	26.5 feet	Horsepower:	2,530
Displacement:	5,720 tons	Cargo Capacity:	30,078 bbl.

ALATNA class ships which have participated in Operation DEEP FREEZE:

USNS ALATNA (TAOG-81)
IV, 60, 61,

USNS CHATTAHOOCHEE (TAOG-82)
62, 63, 64

ANDROMEDA CLASS

TYPE: Attack cargo ship; transports and lands cargo and equipment using boats carried aboard or available pier facilities.

CONSTRUCTION: Vessels of this class, operating in Antarctica, have been modified with ice-strengthened hull, enclosed lookout stations on forecastle and forward mast, and carry a reduced boat group of six LCM's. The ship has a sixty ton boom; pilot house is located amidships.

SPECIFICATIONS:

Length (overall)	459 feet	Screws:	1
Beam:	63 feet	Propulsion:	Steam Turbine
Draft:	26.4 feet	Horsepower:	6,000
Displacement:	14,200 tons	Cargo Capacity:	428,000 cu.ft.

ANDROMEDA class ships which have participated in Operation DEEP FREEZE:

USS ARNEB (AKA-56)
I, II, III, IV, 60, 61, 62, 63

USS WYANDOT (AKA - 92)
I, II, III, IV, 64

EDSALL CLASS

TYPE: Radar picket escort vessel.

CONSTRUCTION: Converted destroyer escort fitted with radio and electronic gear for use on early warning system deployment, equipped for control and guidance of aircraft.

SPECIFICATIONS:

Length (overall):	302 feet	Screws:	2
Beam:	61 feet	Propulsion:	Diesal Reduction
Draft:	26.5 feet	Horsepower:	6,000
Displacement:	1,850 tons	Cargo Capacity:	N/A

EDSALL class ships which have participated in Operation DEEP FREEZE:

USS WILHOITE (DER-397) - 61
USS FORESTER (DER-334)- 63
USS DURANT (DER-389)- 63
USS VANCE (DER-387) - 62
USS HISSEM (DER-400) - 64

ELTANIN CLASS

TYPE: Cargo vessel with special adaptations for special missions.

CONSTRUCTION: Specially strengthened hull for work in ice; ice-breaker type bow, enclosed lookout station on forward mast, and pilot station foward. Superstructure located aft.

SPECIFICATIONS:

Length (overall):	262	feet	Screws:		2
Beam:	52	feet	Propulsion:	Diesal Electric	
Draft:	19	feet	Horsepower:		3,200
Displacement:	4,942	tons	Cargo Capacity:		varied

ELTANIN class ships which have participated in Operation DEEP FREEZE:

USNS MIRFAK (TAK-271) - 63

USNS MIZAR (TAK-272) - 62

USNS ELTANIN (TAK-270) - 63, 64 (ELTANIN has been modified and equipped with facilities for use as a scientific research ship by the National Science Foundation.)

GLACIER CLASS

TYPE: Icebreaker, designed to provide ice-breaking services and limited logistic support and scientific studies in polar regions.

CONSTRUCTION: Has all-welded construction, double thick hull, round bottom and reinforced bow. Deck arrangement includes port and starboard well decks, helicopter deck and covered hanger located aft, and aloft and wing conning stations. The ship has a 500 ton hold and heeling tanks and carries two helicopters, landing craft, and Greenland cruiser.

SPECIFICATIONS:

Length (overall):	310	feet	Screws:		2
Beam:	74	feet	Propulsion:	Diesel Electric	
Draft:	29	feet	Horsepower:		21,000
Displacement:	8,600	tons	Cargo Capacity:	500 tons, 20,000 gal.	

Antarctic service: USS GLACIER, I, II, III, IV, 60, 61, 62, 63, 64.

LOCH CLASS

TYPE: Frigate, purchased from England by the New Zealand Government in 1948.

CONSTRUCTION: Data not available.

SPECIFICATIONS:

Length (overall):	307	feet	Screws:		2
Beam:	38.5	feet	Propulsion:	Reciprocating, triple expansion	
Draft:	14	feet	Horsepower:		5,500
Displacement:	1,435	tons	Cargo Capacity:		N/A

LOCH class ships which have participated in Operation DEEP FREEZE:

HMNZS ROTOITI
62, 63

HMNZS PUKAKI
64

LOCH CLASS

TYPE: Radar picket vessel, purchased from England by the New Zealand Government.

CONSTRUCTION: Data not available.

SPECIFICATIONS:

Length (overall):	307 feet	Screws:	2
Beam:	38.5 feet	Propulsion:	Diesel Electric
Draft:	14 feet	Horsepower:	5,500
Displacement:	1,435 tons	Cargo Capacity:	N/A

LOCH class ships which have participated in Operation DEEP FREEZE:

HMNZS ROTIOTI
62, 63

HMNZS PUKAKI
64

PATAPSCO CLASS

TYPE: Fleet oiler.

CONSTRUCTION: Single decked with raised forecastle and poop; single boom. Pilot house located forward.

SPECIFICATIONS:

Length (overall):	311	feet	Screws:		2
Beam:	49	feet	Propulsion:	Diesel Electric	
Draft:	16	feet	Horsepower:		3,300
Displacement:	4,335	tons	Cargo Capacity:	2,100 tons 55,400 gal. oil, 709,760 gal. gasoline	

PATAPSCO class ships which have participated in Operation DEEP FREEZE:

USS ELKHORN (AOG-7) - 62

USS TOMBIGBEE (AOG-11)-63

USS NESPELEN (AOG-55) - I, II, III, IV

VICTORY CLASS

TYPE: Cargo ship, unlimited service; "Victory Ship" hull.

CONSTRUCTION: Single decked with raised forecastle. Machinery and pilot house located amidships.

SPECIFICATIONS:

Length (overall):	450	feet	Screws:		1
Beam:	62	feet	Propulsion:	Steam	Turbine
Draft:	24	feet	Horsepower:		8,500
Displacement:	12,450	tons	Cargo Capacity:	5,700	tons

VICTORY class ships which have participated in Operation DEEP FREEZE:

USNS GREENVILLE VICTORY (TAK-237) - I, II, III, 61
USNS JOSEPH F. MERRELL (TAK-275) - II, 62, 63, 64
USNS JOHN R. TOWLE (TAK-240) - 62, 64

WIND CLASS

TYPE: Icebreaker, designed for escorting cargo ships through ice fields for limited logistic and scientific work in polar regions.

CONSTRUCTION: All-welded steel hull with round bottom, side plating, and ice cutting bow. Helicopter deck aft; aloft lookout station; wing conning stations; heeling tanks. Carries two helicopters, landing craft, and Greenland cruiser.

SPECIFICATIONS:

Length (overall):	269 feet	Screws:	2
Beam:	63.5 feet	Propulsion:	Diesel Electric
Draft:	29 feet	Horsepower:	10,000
Displacement:	6,515 tons	Cargo Capacity:	

WIND class icebreakers which have participated in Operation DEEP FREEZE:

USS ATKA (AGB-3)-II, III, 60, 62, 64
USCGC WESTWIND (WAGB-281)-III
USCGC EASTWIND (WAGB-279)-I, 60, 61, 62, 63, 64
USS EDISTO (AGB-2)-I, IV, 61, 63
USS BURTON ISLAND (AGB-1)-III, 60, 62, 64
USS STATTEN ISLAND (AGB-5)-II, IV, 61, 63
USCGC NORTHWIND (WAGB-282)-II, IV

VEHICLES

CATERPILLAR TRACTORS

Manufactured by the Caterpillar Tractor Company of Peoria, Illinois, "Cats" of many types are used in the Antarctic. Operating in temperatures as low as -65°F., they prepare runways and fill crevasses (bulldozer), are used as cranes (when fitted with booms), excavate snow (using buckets), and are used extensively in loading operations (fork lifts), and for general hauling.

SPECIFICATIONS:	D2 LGP	D4 LGP	D8 LGP	D9 S
Width:	9' 6"	10' 0"	14' 0"	9'11"
Height:	8' 6"	9' 6"	12' 1"	9' 2"
Length:	13'10"	15' 0"	20' 0"	18' 0"
Weight (pounds)	14,000	24,000	74,000	64,000
Horsepower (drawbar)	38	65	155	385
Fuel Capacity (gallons)	32	42	118	200
Fuel Consumption (gallons per hour)	3-5	4-6	9-11	9-12
Speed (miles per hour)	1.5-5.5	1.5-5.5	1.5-10	1.7-7.1
Ground Pressure (lbs./in.^{2})	3.6	3.7	4.5	

D8S LGP-D8 LGP-D8 D9S

in action

MOTOR TOBBOGANS

The motor toboggan is used primarily for field work by small scientific parties. Their ability to haul comparatively large loads and their ease of maintenance makes them particularly adaptable for this type of work.

Eliason model K-2

SPECIFICATIONS:

Length:	7' 9"
Width:	33"
Height:	36"
Engine:	9 horsepower, Briggs Stratton Air Cooled.
Maximum Speed:	25 mph
Towing Capacity:	1,000 pounds
Manufactured by	Carter Bros., Ltd.

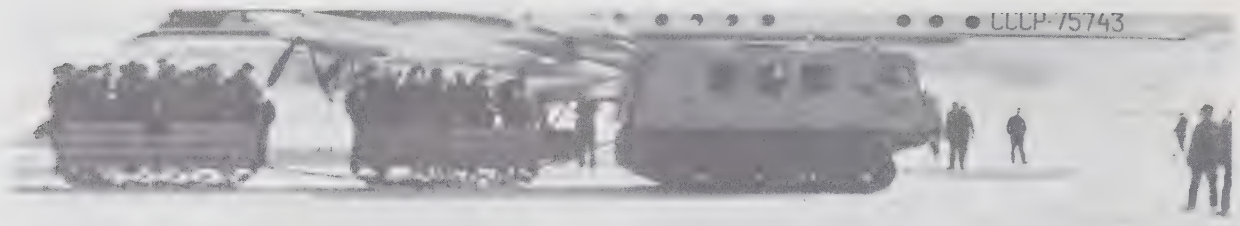
Polaris K-95 Sno-Traveler

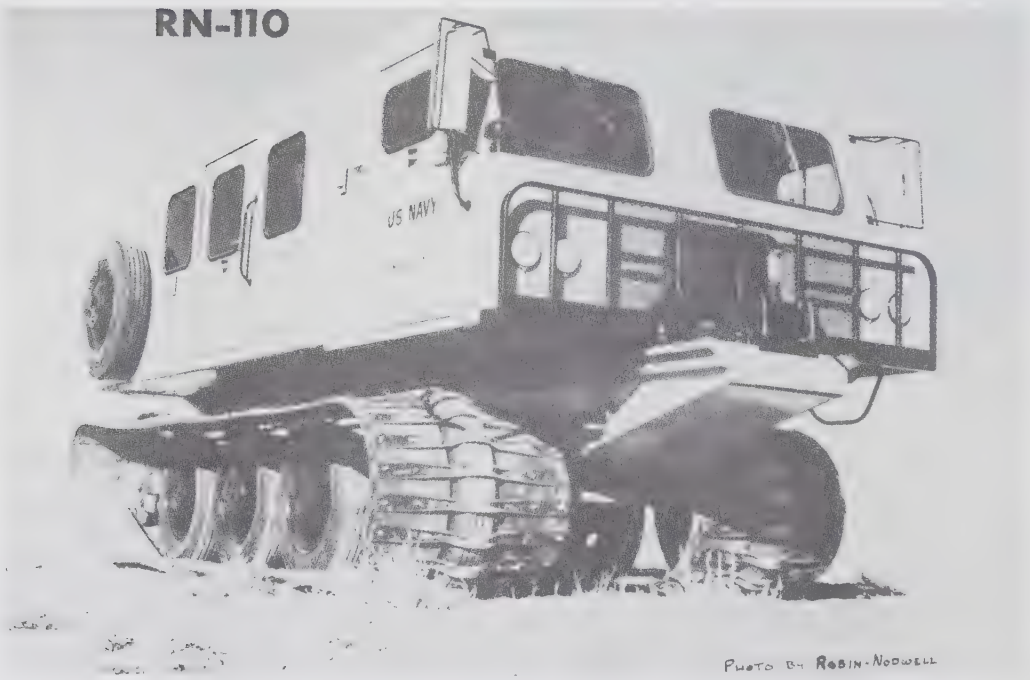
SPECIFICATIONS:

Length:	10' 4"
Weight:	550 pounds
Width:	36"
Height:	56"
Towing Capacity:	1,500 pounds
Engine:	9.5 horsepower Kohler
Speed:	2-20 mph
Manufactured by	Polaris Industries, Inc.

NODWELL

Manufactured by Robin-Nodwell Manufacturing LTD., Calgary, Canada. This rugged off-the-road carrier is used to transport personnel from the airstrip at Williams Field to McMurdo Station.





SPECIFICATIONS:	RN-75	RN-110
Width:	8'11"	8'11"
Height:	8' 0"	8' 0"
Length:	15' 6"	19' 4"
Weight (pounds):	9,060	10,580
Engine:	Ford 6,223 cu. in.	Ford V-8,292 cu. in.
Speed (miles per hour):	12	12
Fuel Capacity (gallons)	45.6	38
Ground Pressure (psi)	2.2	2

SLEDS

A number of types of sleds are found in the Antarctic. Among the most common in use are those built by Otaco, Ltd., of Orillia, Ontario. Pictured below is the 20-ton sled used for hauling of bulk cargo.

SPECIFICATIONS:	10-ton	20-ton
Length:	22'4"	24'0"
Width:	8'6"	12'0"
Weight (pounds):	9,000	20,000
Capacity (pounds):	20,000	40,000

SNO-CAT 443 & 743

Sno-Cats are manufactured by the Tucker Sno-Cat Corporation of Medford, Oregon. They are used for traverses over snow-covered areas. The 443 model is a personnel transport vehicle for six men. The 743 model provides adequate living accomodations for two men, or will transport eight men. The 443 and 743 models operate on gasoline.

SPECIFICATIONS:	443	743
Length:	15' 10"	20' 0"
Width:	6' 3"	7' 5"
Height:	7' 5"	7' 9"
Weight (pounds):	4,200	7,400
Load Capacity (pounds):	1,650	2,300
Fuel Capacity (gallons):	35	50
Miles per Gallon	4-6	2-4
Speed (Maximum mph)		20

SNO-CAT 843

Manufactured by Tucker Sno-Cat Corporation, Medford, Oregon. This model is equipped to accomodate four men and/or to house small field laboratories. The 843 model uses diesel fuel.

SPECIFICATIONS:

Length:	26'	Load Capacity:	15,000 pounds
Width:	9'	Fuel Capacity:	150 gallons
Height:	11'	Miles per Gallon:	1-4
Weight:	23,000 pounds		

TRACKMASTER

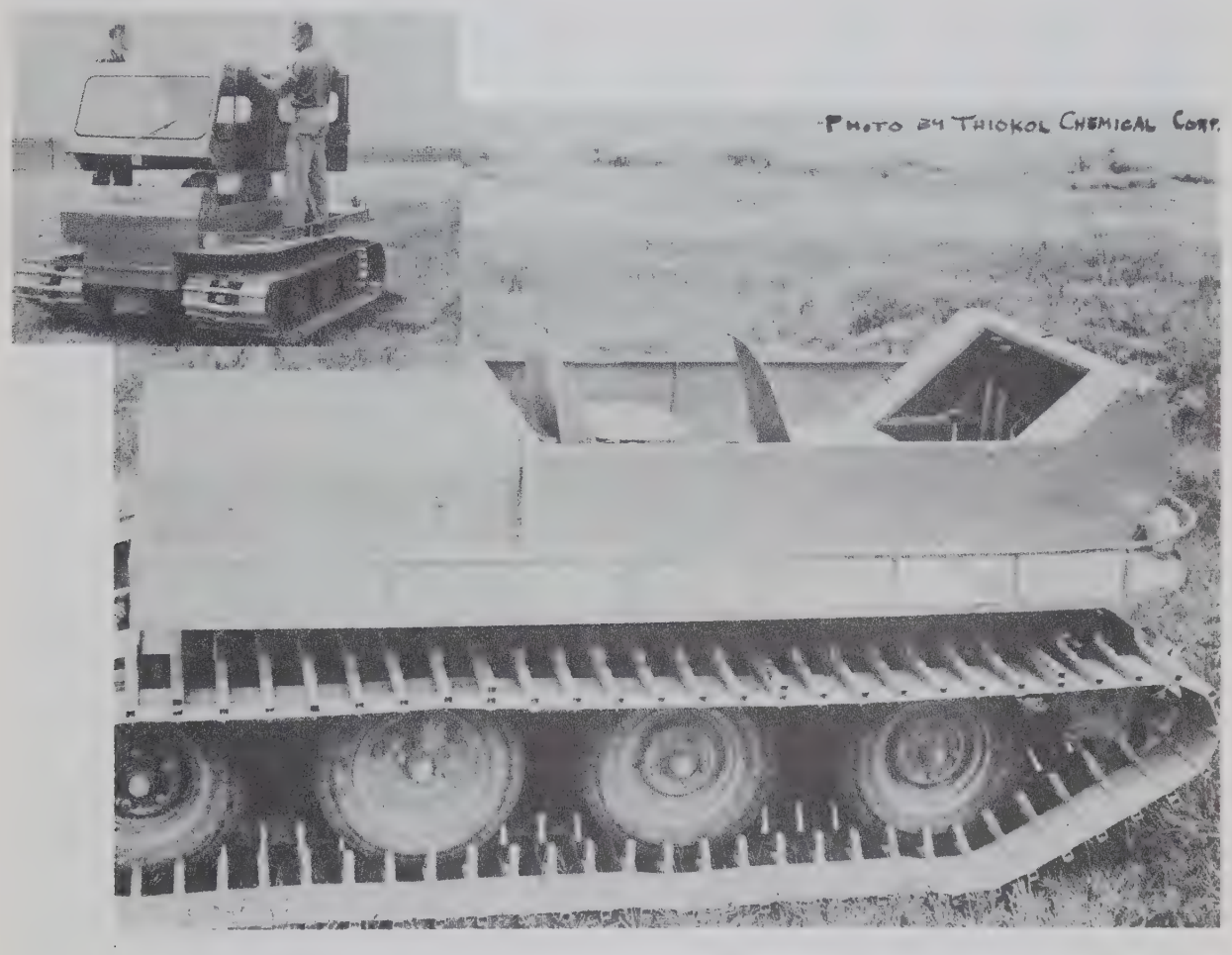
Manufactured by Thiokol Chemical Corporation, Logan, Utah. These versatile off-the-road tracked vehicles are used for exploratory traverses.

SPECIFICATIONS:	4T2	4T10
Width:	7' 10"	7' 10"
Height:	7' 0"	7' 5"
Length:	11' 11"	12' 7"
Weight (pounds):	4,410	5,060
Passengers:	2	10
Fuel Capacity (gallons)	20	20
Maximum Speed (mph)	35	35
Ground Pressure (psi)	.168	.78

TRACKMASTER

SPRYTE MODEL 201

An all purpose off-the-highway, tracked vehicle manufactured by Thiokol. This vehicle is used for general utility transportation around permanent stations and base camps.

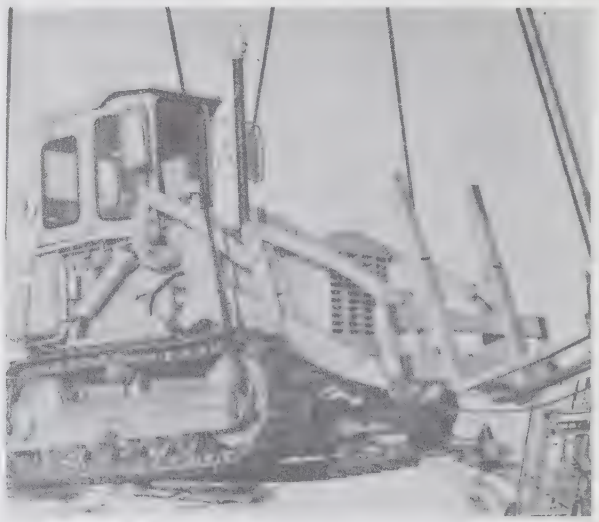


SPECIFICATIONS:

Length:	10' 1"	Engine: Ford 6, 101 horsepower	
Width:	7' 3"	Ground Pressure (psi)	.63
Height:	4' 1"	Fuel Capacity (gallons)	15
Weight (pounds)	2,600	Fuel Consumption (mpg)	8-12
Load Capacity (pounds)	1,500	Speed (mph)	35

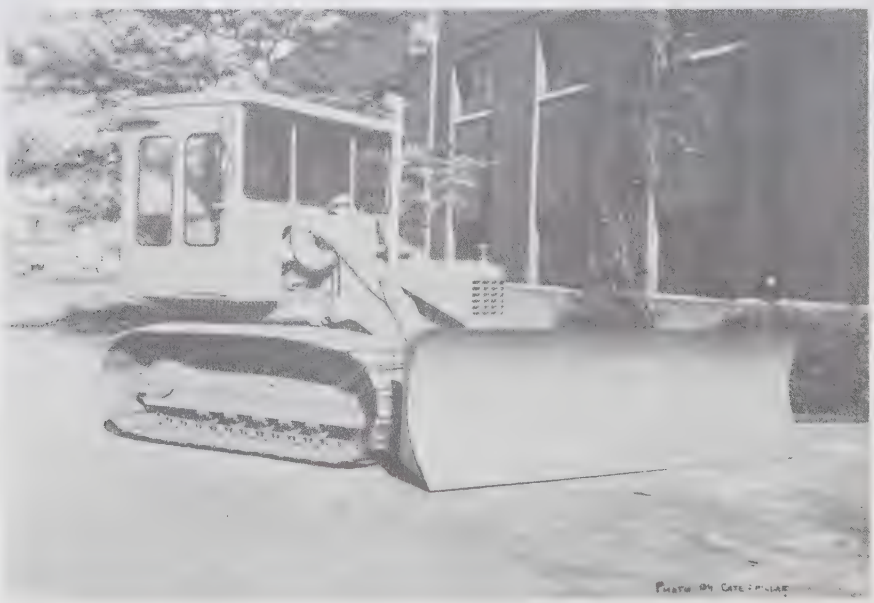
TRAXCAVATOR 955

Manufactured by Caterpillar Tractor Company of Peoria, Illinois, these utility vehicles are used primarly for cargo handling and snow melting operations.



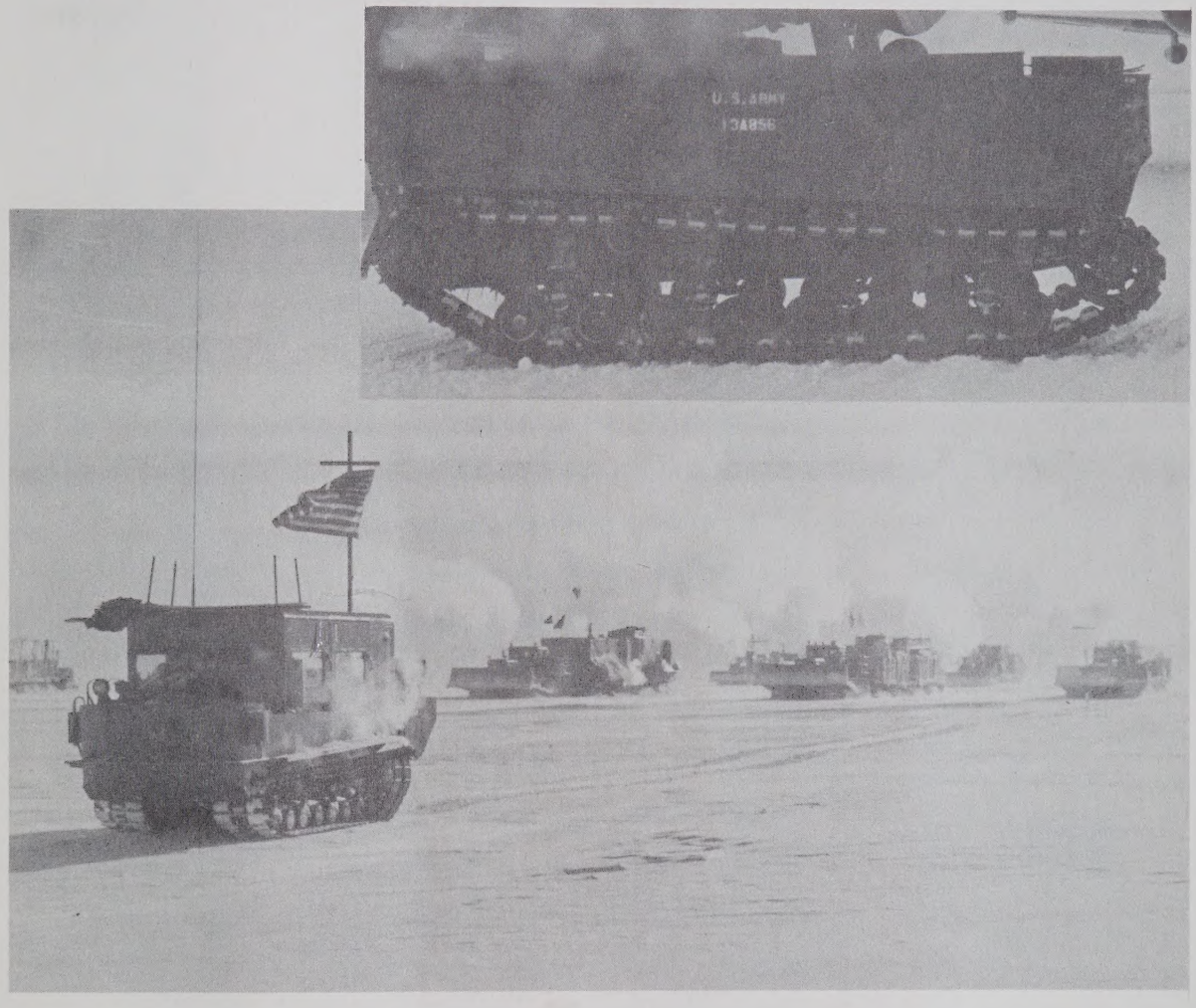
SPECIFICATIONS:

Width:	10' 8"	Fuel Capacity (gallons):	45
Height:	10' 4"	Fuel Consumption	
Length:	16' 8"	(gallons per hour):	5-7
Weight (pounds)	26,000	Speed (mile per hour):	1.5-7
Horsepower (drawbar)	65	Ground Pressure (psi):	4



M29C "WEASEL"

The M29C Cargo Carrier ("Weasel") was manufactured for the U. S. Army by the Ford Motor Company and the Studebaker Corporation during World War II. It is used for transport of personnel and freight over snow, ice and bare ground.



SPECIFICATIONS:

Width:	5' 1"
Height:	5' 10"
Length:	10' 0"
Weight (pounds):	3,725
Load Capacity (pounds):	1,200
Fuel Capacity (gallons):	35
Fuel Consumption (mpg):	4-7

Date Due

09624

Pam:(*7):355.41
USAPO

U.S. ANTARCTIC PROJECTS OFFICER
AUTHOR

Support for Science, Antarcatic
TITLE

DATE LOANED	BORROWER'S NAME	DATE DUE

09624

BOREAL INSTITUTE
LIBRARY

LIBRARY
BOSTON INSTITUTE

University of Alberta Library
0 1620 0340 2318